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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/605,772 | 10/24/2003 | Jialiang Le | 202-1320(FGT1856PA) | 2771 |
| 28549 | 7590 | 04/27/2004 | EXAMINER | |
| KEVIN G. MIERZWA ARTZ & ARTZ, P.C. 28333 TELEGRAPH ROAD, SUITE 250 SOUTHFIELD, MI 48034 | | | TO, TUAN C | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 3663 | |

DATE MAILED: 04/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | | |
|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/605,772 | | LE ET AL. | |
| | Examiner | | Art Unit | |
| | Tuan C To | | 3663 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-20 is/are rejected.
- 7) ☒ Claim(s) 8, and 12-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>10/24/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claims 12-15 are objected to because of the following informalities: "claim 12" is incorrectly typed in the preamble of claim 12. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-3, 7, and 9-13 are rejected under 35 U.S.C. 102(a) as being anticipated by Watson (U.S. 20030182041A1).

Claim 1:

With respect to claim 1, the reference to Watson has been cited as disclosing a vehicle rollover detection system and method, comprising a lateral accelerometer (18) for measuring the lateral acceleration of the vehicle (Watson, figure 2, lateral accelerometer 18), the lateral velocity sensor is provided for measuring the lateral velocity (Watson, abstract). Thus, Watson discloses the lateral acceleration and lateral characteristics other than lateral acceleration. On page 2, from paragraphs 0030 and 0032, Watson further discloses that the filtered lateral acceleration signals to evaluate a

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function that is compared with threshold, that is used to make a deployment of vehicle safety restrain devices, and the processor (26) shown in figure 2 of Watson processed the filtered lateral acceleration signal in order to determine whether the vehicle is in a condition of rolling over (Watson, page 16, paragraph 0182). In addition, on page 15, paragraph 0179 and 0180, Watson discusses that when the lateral kinetic energy is greater than the potential energy, the vehicle is likely to roll over.

Claim 2:

With regard to claim 2, Watson teaches the vehicle rollover detection system comprising a roll stability control system, in which a plurality of sensors such as lateral accelerometer (18), roll rate sensor (20), lateral velocity sensor are coupled to the processing unit (26), which generates a signal for controlling a safety restraint system such as air bag, seat belt pretensioner (Watson, figure 2).

Claim 3:

With regard to claim 3, Watson teaches the vehicle rollover detection system comprising a plurality of sensors such as lateral accelerometer (18), roll rate sensor (20), lateral velocity sensor coupled to the processing unit (26), which generates a signal for controlling a safety restraint system such as air bag (Watson, figure 2).

Claim 7:

With regard to claim 7, Watson discloses the lateral characteristic comprises lateral energy (Watson, page 15, paragraphs 0179, and 0180).

Claim 9:

With regard to claim 9, Watson teaches that the lateral characteristic comprises lateral velocity (Watson, figure 16, lateral velocity 42).

Claim 10:

With regard to claim 10, Watson discloses the act of determining a vertical acceleration in order to enhance the ability of vehicle roll over (Watson, page 16, paragraph 0185).

Claim 11:

With respect to claim 11, the reference to Watson has been cited as disclosing a vehicle rollover detection system and method, comprising: a lateral accelerometer (18) for measuring the lateral acceleration of the vehicle, a roll rate sensor (20) for measuring the roll angle rate (Watson, figure 2, lateral accelerometer 18, roll rate sensor 20), the lateral velocity sensor is provided for measuring the lateral velocity (Watson, abstract). Thus, Watson discloses the lateral acceleration and lateral characteristics other than lateral acceleration. On page 2, from paragraphs 0030 and 0032, Watson further discloses that the filtered lateral acceleration signals to evaluate a function that is compared with threshold, that is used to make a deployment of vehicle safety restrain devices, and the processor (26) shown in figure 2 of Watson processed the filtered lateral acceleration signal in order to determine whether the vehicle is in a condition of rolling over (Watson, page 16, paragraph 0182). In addition, on page 15, paragraph 0179 and 0180, Watson discusses that when the lateral kinetic energy is greater than the potential energy, the vehicle is likely to roll over.

Claim 12:

With respect to claim 12, Watson discloses the act of determining a vertical acceleration, and the act of combining the lateral velocity with vertical acceleration, or other sensed vehicle state parameters in order to enhance the ability of vehicle roll over (Watson, page 16, paragraph 0185).

Claim 13:

With respect to claim 13, Watson discloses the act of determining a vertical acceleration, and the act of combining the lateral velocity with vertical acceleration, or other sensed vehicle state parameters in order to enhance the ability of vehicle roll over (Watson, page 16, paragraph 0185).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

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under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4-6, 14, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watson (U.S. 20030182041A1) and in view of Lu et al. (U.S. 20030100979A1).

Claim 4:

With respect to claim 4, the reference to Watson discloses the limitations recited in claim 1 except for the step of determining a roll angle; wherein indicating a roll condition comprises indicating a roll condition in response to comparing and the roll angle.

The reference to Lu et al. has been provided to overcome the missing features from Watson by teaching that the controller (26) for roll stability control function determines a roll angle from the lateral acceleration sensor signal and calculates the feedback control signal based on the roll angle (Lu et al. abstract, figure 2, controller 26).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Watson to include the teachings of Lu et al. in order to determine the bank angle is greater a threshold value, and the safety devices in a vehicle such as airbag is properly deployed in response to deviation of said angle.

Claim 5:

With regard to claim 5, Lu et al. discloses a typical roll stability control system for a motor vehicle comprising: a controller (26) is coupled to a plurality of sensors, wherein said sensors includes the speed sensor (20), which is possibly a longitudinal speed sensor for determining the longitudinal speed of the motor vehicle (Lu et al. figure 2, speed sensor 20).

Claim 6:

With regard to claim 6, the roll stability control system of Lu et al. comprises the act of determining a side slip angle in such as way that the controller (26) is associated with a plurality of sensors for determining the side slip angle, and the roll stability control system uses the determined side slip angle to command a handling and/or safety device (Lu et al. page 3, paragraphs 0038, and 0040).

Claim 14:

With regard to claim 14, the roll stability control system of Lu et al. comprises the act of determining a side slip angle in such as way that the controller (26) is associated with a plurality of sensors for determining the side slip angle, and the roll stability control system uses the determined side slip angle to command a handling and/or safety device (Lu et al. page 2, paragraphs 0038, and 0040).

Claim 15:

With regard to claim 15, Lu et al. discloses a typical roll stability control system for a motor vehicle comprising: a controller (26) is coupled to a plurality of sensors, wherein said sensors includes the speed sensor (20), which is possibly a longitudinal

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speed sensor for determining the longitudinal speed of the motor vehicle (Lu et al. figure 2, speed sensor 20).

Claims 16, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lu et al. (U.S. 20030100979A1) and in view of Watson (U.S. 20030182041A1).

Claim 16:

With respect to claim 16, The reference to Lu et al. has been provided as disclosing a system of yaw stability control to include roll stability control function, in which the controller (26) for roll stability control function determines a roll angle from the lateral acceleration sensor signal and calculates the feedback control signal based on the roll angle (Lu et al. abstract, figure 2, controller 26), a speed sensor 20 for generating longitudinal speed signal (Lu et al, page 3, paragraph 0031), a lateral speed sensor for generating a lateral speed signal (Lu et al, page 3, paragraph 0031), a roll angle sensor for generating a roll angle signal (Lu et al, abstract), a controller coupled to said sensors. In addition, the controller (26) generates a side slip angle in response to the lateral speed and the longitudinal speed (Lu et al, page 3, paragraphs 0035, and 0038). It is important to note that the controller (26) indicate a roll condition in response to side slip angle and roll angle (Lu et al, page 3, abstract, paragraph 0038)

Lu et al. do not disclose that the controller indicating a roll condition by comparing the lateral acceleration signal and the lateral characteristic to a threshold.

The reference to Watson is directed to a vehicle rollover detection system comprising a lateral accelerometer (18) for measuring the lateral acceleration of the vehicle (Watson, figure 2, lateral accelerometer 18), the lateral velocity sensor is

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provided for measuring the lateral velocity (Watson, abstract). Thus, Watson discloses the lateral acceleration and lateral characteristics other than lateral acceleration. On page 2, from paragraphs 0030 and 0032, Watson further discloses that the filtered lateral acceleration signals to evaluate a function that is compared with threshold, that is used to make a deployment of vehicle safety restrain devices, and the processor (26) shown in figure 2 of Watson processed the filtered lateral acceleration signal in order to determine whether the vehicle is in a condition of rolling over (Watson, page 16, paragraph 0182). In addition, on page 15, paragraph 0179 and 0180, Watson discusses that when the lateral kinetic energy is greater than the potential energy, the vehicle is likely to roll over.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Lu et al. to include the teachings of Watson so that the stability of the vehicle is controlled as well as to properly deploy the safety devices installed in the vehicle when the vehicle is in a condition of rollover.

Claim 18:

With regard to claim 18, Watson teaches the vehicle rollover detection system comprising a roll stability control system, in which a plurality of sensors such as lateral accelerometer (18), roll rate sensor (20), lateral velocity sensor are coupled to the processing unit (26), which generates a signal for controlling a safety restraint system such as air bag, seat belt pretensioner (Watson, figure 2).

Claim 19:

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With regard to claim 19, Watson teaches the vehicle rollover detection system comprising a plurality of sensors such as lateral accelerometer (18), roll rate sensor (20), lateral velocity sensor coupled to the processing unit (26), which generates a signal for controlling a safety restraint system such as air bag (Watson, figure 2).

Claim 20:

With regard to claim 20, Watson discloses the act of determining a vertical acceleration in order to enhance the ability of vehicle roll over (Watson, page 16, paragraph 0185).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lu et al. (U.S. 20030100979A1), Watson (U.S. 20030182041A1), and further in view of Nishiyama (JP2002166826A).

As discussed above, the combination of Lu et al. and Watson discloses the limitations of claim 16. However, neither Lu et al. nor Watson discloses that roll angle sensor comprises a roll rate sensor from which roll angle is derived.

The reference to Nishiyama is directed to a roll over detection system for a vehicle, in which the roll angle sensor (24a) for detecting vehicle roll angle, and a roll angular velocity sensor (24b) for detecting the vehicle roll angular velocity. And the urgency decision unit (24c) is coupled to said sensors for detecting the rollover condition.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to improve the system of Lu et al. and Watson by substituting the teachings of Nishiyama so that the stability of the vehicle is controlled as well as to

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properly deploy the safety devices installed in the vehicle when the vehicle is in a condition of rollover.

Allowable Subject Matter

The examiner has found neither Watson nor Lu et al. discloses or fairly suggests that the lateral characteristic comprising lateral energy density as recited in claim 8. None of the other references teaches the limitation as said. Thus, claim 8 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusions

The prior art made of record, which are listed in PTO-892, and not relied upon are considered pertinent to applicant's disclosure includes the following: Lu et al. (U.S. '0775'A1), Schubert's, and Hrovat et al.'s.

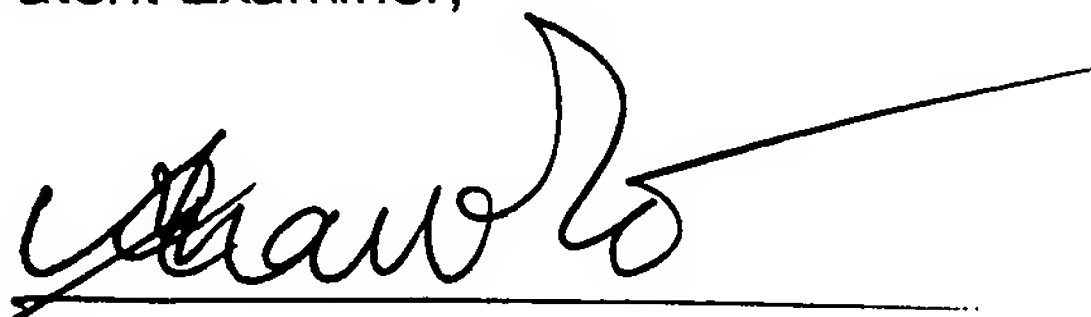
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan C To whose telephone number is (703) 308-6273. The examiner can normally be reached on from 8:00AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Black can be reached on (703) 305-8233. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7687 for regular communications and none for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.

Patent Examiner,

A handwritten signature in black ink, appearing to read 'Tuan C To', is written over a horizontal line. The signature is stylized with a large, sweeping flourish extending to the right.

Tuan C To

Date: April 18, 2004